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Recent Economic Trends in Region 10

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This paper is intended as a discussion piece and for background information for EPA employees. Its purpose is to provide an informational matrix to assist them in their implementation of programs and in the conduct of their continuing dialogs with the various publics we serve and regulate.

The method is factual and expository. There is no effort to analyze economic policy or to forecast the future course of the regional economy.

Personal income is employed as the index of economic performance, per-capita personal income as the measure of comparative performance. Shift analysis is used to isolate the components of change, and thus to detect the major trends that have affected the regional economy.

The heart of the analysis is contained in section 6. Sections 1 through 5 set a national and historic background. Section 7 integrates and simplifies the materials of section 6.

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U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

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SEATTLE, WASHINGTON 98101

MAY 7 1985

REPLY TO ATTN OF: M/S 312

MEMORANDUM

SUBJECT: Recent Economic Trends in Region 10

FROM: R. Coughlin

TO: Julie Hagensen

This paper is submitted as a discussion piece and for background information of EPA employees. Its purpose is to provide an informational matrix to assist them in their implementation of programs and in the conduct of their continuing dialogs with the various publics we serve and regulate.

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The heart of the analysis is contained in section 6, which is, I fear, rather lengthy. Sections 1 through 5 are intended to, briefly, set a national and historic background. Section 7 attempts to integrate and simplify the materials of section 6. The knowledgeable reader can probably confine his efforts to section 6. (If he is extremely knowledgeable, he can further reduce his expenditure of effort by consulting only the tables in that section.)

I hope this thing proves useful. It was fun taking the time to do it.

1. Relative Population Growth

Federal Administrative Region 10--the States of Alaska, Idaho, Oregon, Washington--has had a heritage of continuous growth. Since settlers began filtering into the Willamette Valley of Oregon before the Mexican War, each census but one has seen the region's population increase at a rate in excess of the national rate.

The modern (for the purposes of this study, the years between 1929 and 1983) record of population growth of the region is presented, in terms of both estimated numbers of persons and of annual rates of growth, in Table 1. Though growth has been uneven among the four states and between various periods, all four states have enjoyed significantly greater than average rates of population increase since 1929. In that time the region as a unit has expanded its population at half again the rate of the nation. Over the most recent decade--i.e. since 1973--Region 10's population has grown at twice the national rate.

Table 1

Population Growth, 1929 to 1983

1. Numbers of Persons

Year	U.S., 10^6	chge	AK, 10^3	chge	ID, 10^3	chge	OR, 10^6	chge	WA, 10^6	chge	Reg X, 10^{6*}	chge
1929	121.8				447.7		0.946		1.555		2.949	
1933	125.6	3.8			465.2	17.5	0.978	.032	1.593	.038	3.036	.087
1937	128.9	3.3			507.1	41.9	1.049	.071	1.682	.089	3.238	.202
1941	133.4	4.5			502.5	-4.6	1.070	.021	1.793	.111	3.366	.128
1945	139.9	6.5			490.2	-12.3	1.260	.190	2.237	.444	3.987	.621
1949	149.2	9.3			569.5	79.3	1.435	.175	2.294	.057	4.299	.312
1953	160.2	11.0	205.0		596.1	26.6	1.601	.166	2.466	.172	4.663	.364
1957	172.0	11.8	230.9	25.9	641.8	45.7	1.712	.111	2.724	.258	5.078	.415
1961	183.7	11.7	237.8	6.9	684.2	42.4	1.787	.075	2.882	.158	5.353	.275
1965	194.3	10.6	270.9	33.1	685.9	1.7	1.937	.150	2.967	.085	5.590	.237
1969	202.7	8.4	296.0	25.1	707.0	21.1	2.062	.125	3.343	.376	6.112	.522
1973	211.9	9.2	333.2	37.2	782.1	75.1	2.239	.177	3.477	.134	6.498	.386
1977	220.2	8.3	397.4	64.2	883.4	101.3	2.439	.200	3.772	.295	7.094	.596
1981	229.8	9.6	411.8	14.4	959.4	76.0	2.650	.211	4.217	.445	7.826	.732
1983	234.2	4.4	479.1	67.3	989.0	29.6	2.662	.012	4.300	.083	7.951	.125
Mean chge		8.0		34.3		38.7		.123		.196		.357

2. Annual Percentage Rate of Change

Period												
1929-33	1.0				1.0		0.8		0.6		0.7	
1933-37	0.6				2.2		1.8		1.4		1.6	
1937-41	0.9				-0.2		0.5		1.6		1.0	
1941-45	1.2				-0.6		4.1		5.7		4.3	
1945-49	1.6				3.8		3.3		0.6		1.9	
1949-53	1.8				1.2		2.8		1.8		2.1	
1953-57	1.8		3.0		1.9		1.7		2.5		2.2	
1957-61	1.7		0.7		1.6		1.1		1.4		1.3	
1961-65	1.4		3.3		0.1		2.0		0.7		1.1	
1965-69	1.1		2.3		0.7		1.6		3.0		2.2	
1969-73	1.1		3.0		1.5		2.1		1.0		1.5	
1973-77	1.0		4.5		3.1		2.2		2.1		2.2	
1977-81	1.1		0.9		2.1		2.1		2.8		2.5	
1981-83	1.0		7.8		1.5		0.2		0.5		0.8	
Mean	1.2		3.2		1.4		1.9		1.8		1.8	

*Alaska excluded

2. A Basis for Comparing Regional Economic Performance

It is one of the firmest of economic principles that, in the absence of effective barriers, people will migrate to improve their incomes. That being so, it would seem that some aspect of Region 10's economic performance has, almost continuosly over the past half century, been sufficiently superior to that of a good portion of the rest of the nation to attract persistent immigration.

The broadest and most commonly employed measure of economic performance is the gross national product (GNP), the estimated value of all of the goods and services produced in a nation in a period of one year. Gross product has the significant merits of being generally accepted and understood. But for purposes of tracing comparative regional economic success it has several drawbacks--the most critical of them being the absence of any consistent, authoritative measurement of gross regional or state products.

Fortunately, the U.S. Department of Commerce has for some years compiled state by state estimates of personal income, including reconstructions that take the series back to 1929. And for purposes of regional comparison, personal income is probably a superior criterion than regional product, since it excludes variables such as capital formation and inventory shifts that are vital to overall economic function but do not bear immediately and directly upon the well being of individuals.

Personal income constitutes the largest share of GNP, accounting for over 80% of the total. It is the money income that is made available directly to individuals, and consists of all wages and salaries, business income of farm and non-farm proprietorships and partnerships, dividends, interest, rent, and transfer payments (predominantly pension and social security payments, but also including remittances to and from foreigners and income maintenance grants), minus contributions for social insurance. Defined in terms of GNP, personal income is equal to GNP minus retained earnings of corporations, capital consumption, changes in inventory evaluation, contributions for social insurance, and business accruals.

Like GNP, personal income is calculated in dollars and presented as an aggregate. If it is to be used for purposes of comparison, then, it must be adjusted for differences in population and purchasing power. In the discussion that follows, all dollar values have been converted to 1983 purchasing power equivalence with the use of the consumer Price Index. per-capita evaluations are based on the mean annual population estimates of the Bureau of Census.

Since 1933, when it touched a low of less than $2900 per person, personal income in the United States has been rising at an average rate of almost 2.9% a year. (Compounding annual rate, exclusive of population increase, for period 1933 through 1983.)

The course of per-capita personal income appears, when rendered graphically, to have been almost undeviatingly upward from 1933 to 1979. Conversion from a wartime economy resulted in a drop of about $1000--roughly equal to the 1929 to 1933 loss--between 1945 and 1949. And classical inventory recessions dampened the pace of increase in 1938, 1954, 1958 and 1975. But the predominant thrust has been unfailingly upward.

Trend analysis, however, suggests that growth of personal income has been considerably more irregular than the aggregate record suggests. Indeed, it is possible to detect five distinct periods, each with a duration of roughly a decade, that compose the overall record of economic growth of the past half century.

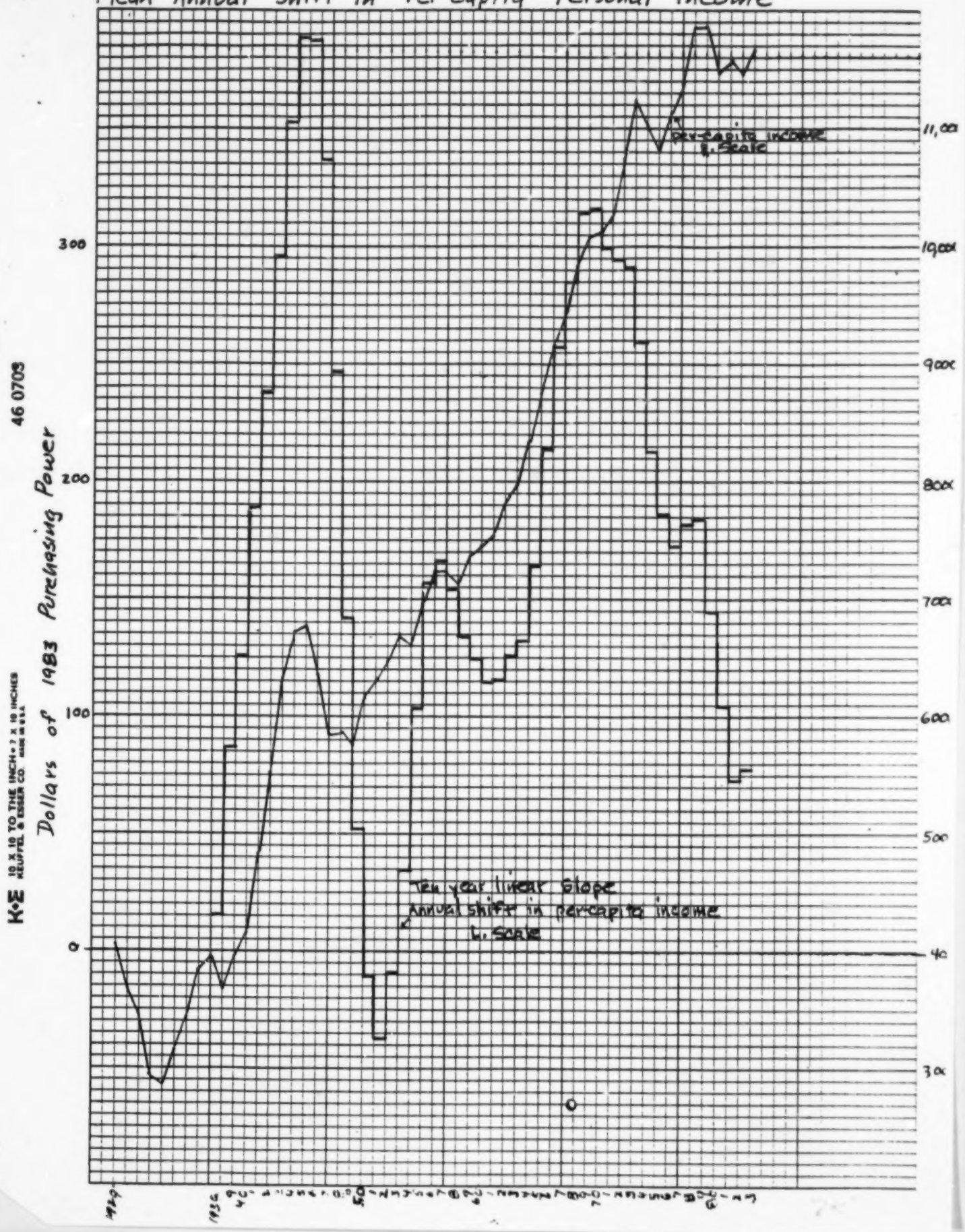
Periodic variation in income growth becomes evident if change in per-capita income is treated as a linear rather than, as is more common, a functional relationship. In performing such an analysis, the fifty-five years 1929 through 1983 have been considered as forty-six sequential ten year periods (1929-1938, 1930-1939, 1931-1940, etc.), with the linear trend of per-capita income calculated for each ten year period by the use of least squares regression.

Figure 1 presents the results of the analysis. Mean (linear) increase in per-capita personal income is plotted as a histogram, with mean annual per-capita income superimposed as an unbroken line. In the graphic form, both the dramatic increase in economic well being of Americans and the sharp variation in the rate of accretion of that well being become obvious.

Per-capita personal income increased at an increasing rate in each of the ten year periods ending in years 1938 through 1945. It was a time of transition from the worst depression of modern times to total industrial mobilization for global war. Forced savings--rationing, wage and price controls, surtaxes--at the end of the period promoted capital formation necessary to continue the course of economic growth created by gradual reutilization of idled capital in its early years. Overall, per-capita personal income more than doubled in the years between 1933 and 1945, rising from the equivalent of $2876 of 1983 purchasing power to $6782.

Demobilization and transition to peace time economy curtailed income growth briefly. Between 1946 and 1952 growth persisted, but at a decreasing rate. Indeed, each of the ten year periods ending in the years 1950, 1951 and 1952 was characterized by modestly negative shifts in the trend of personal income; so that by the end of the period in 1952, per-capita income of $6,487 was only slightly altered from the $6,361 of 1946.

Over the period 1953 through 1961 average personal income rose at a fluctuating rate. Inventory recessions in 1954 and 1958 interrupted a generally upward movement. With much of the accumulated consumer demand of the depression and war years becoming satisfied, as the period progressed the economy seemed to lack stimulus; and both inflation and unemployment rates edged gradually upward in the course of general affluence. Income per person was $6,706 in 1953, $7,540 by 1961.


Mean Annual Shift in Per-capita Personal Income
Dollars of 1983 Purchasing Power
46 0703
K·E 10 X 10 TO THE INCH • 2 X 10 INCHES
KEUFFEL & ESSER CO.
300
200
100
0
11,000
10000
9000
8000
7000
6000
5000
4000
3000
Per-capita income
L. Scale
Ten year linear slope
Annual shift in per-capita income
L. Scale
0

The sixties were golden years, with average income rising at a rising rate against a background of falling unemployment and stable prices. In spite of social perturbations and the Vietnam War, the economy performed brilliantly, driving average income from $7,803 in 1962 to $10,122 in 1970.

Since 1970 average income has again been increasing at a decreasing rate. Values peaked in 1979 at a level only slightly above average income of 1978, and have been fluctuating somewhat below the 1979 level in the ensuing four years. Average income of $10,251 in 1971 rose to $11,880 in 1979, dropped to $11,675 in 1983 as economic growth in the U.S. failed for the first protracted period since 1929-1933 to match the rate of population growth.

Comparison of the income shift characteristics in each Region 10 state with the nation during each of these periods provides an explanation of the region's atypical population growth, and an insight into the likelihood that the region can sustain such growth over the next decade.

3. Development of the Contemporary Economic Base

To an extraordinary--and generally unrecognized--degree, the relative prosperity and population growth of the Pacific Northwest over the last forty years has its roots in industrial expansion forced by the second world war.

In 1929 per-capita personal income of the area, when adjusted for the distribution of its population, was slightly less than the national average, $3,961 vs. $4,054. Washington's average income was significantly above average, Oregon's significantly below the norm, Idaho's much lower than average. The virtual collapse of the U.S. economy in the next four years struck the Northwest hard. The gap between mean income of the area and the nation more than doubled, Northwest personal income falling to $2,681 per person. Idaho, with its reliance on agricultural production, was particularly hard hit, suffering almost precisely the same dollar loss per resident as the U.S., though its average income in 1929 had been only 73% of that of the nation.

1929 - 1933 Shift in Per-capita Personal Income

	Dollars of 1983 Purchasing Power		
	1929	1933	Shift
US	4054	2876	-1178
IDAHO	2949	1769	-1180
OREGON	3886	2769	-1117
WASHINGTON	4299	2892	-1407

Recovery from the 1933 low was, prior to American entry into the war, somewhat more rapid in the Northwest than the nation. Per-capita income in Idaho, aided by stabilization of prices of agricultural products, exceeded its 1929 level by 1934. Oregon's per-capita income rose above the national level in the same year, exceeding its 1929 level by 1936. Washington's average income did not again attain 1929 levels until 1939, a year before the nation reached that benchmark, but it remained above the norm throughout the depression.

Once American participation in war was initiated, that moderately superior economic performance was transformed into explosive growth. Between 1940 and 1944 per-capita personal income increased 83% in Oregon, 81% in Washington; and even Idaho, out of the mainstream of the war effort, experienced a 79% increase in average income, while the nation was experiencing a 51% increase in income per person. The opportunity to share in the income generated by war production produced a wave of immigration. Though Idaho actually lost population during the war, Oregon's population grew 18% between 1941 and 1945, Washington's grew 25%. The region, which contained 2.5% of the nation's population in 1941, accommodated 9.6% of its total population growth over the next four years.

Those four years transformed the economy of the Pacific Northwest. Before the war the region had subsisted on a narrow industrial base. It supplied softwood lumber, soft wheat, limited port facilities for trade with the Orient, chemical grade wood pulp, and processed seafoods for national markets. Most of its modest manufacturing served only regional or local markets; and the same was true of a good part of its agriculture. Its war production role vastly broadened that narrow base. In four years the Pacific Northwest supplied a disproportionate share of total output of ships, bombing airplanes, staple foods, construction materials, non-ferrous metals, and packaging materials. And by the end of the war, the Northwest had become the focus of production of nuclear weapons.

The industries that developed in the early forties have survived, evolved, grown, been the basis of the subsequent prosperity of the Pacific Northwest. Shipyards operate on a much reduced scale; but until recently the other industries that were the War's legacy to the region have all expanded.

Hydroelectric power, basic to the area before the depression, flowered on a broader scale after Bonneville Dam and Grand Coulee Dam demonstrated the ability of large scale power generation to create its own demand. The fifties and sixties saw development of every available power dam site in the region, installation of long distance transmission lines, construction of storage dams and reregulating reservoirs to optimize the exploitation of the water resource.

Irrigated agriculture expanded in lockstep with hydroelectricity, in part because of the essential compatibility of the engineering, in larger part because sales of electricity through a variety of power pooling mechanisms provided a means to finance integrated water resource development. Irrigation broadened the range of crops produced in the region; and in turn, development of row crops and forage created opportunities for food processing and cattle feeding, once practically unknown in the Northwest. More recently, orchards and vineyards have extended agricultural and food processing diversification.

Non-ferrous metals smelting based on low cost power extended to metals shaping and ultimately fabrication. All of the wartime aluminum plants were transferred to the private sector, expanded, remain in production. Three additional aluminum reduction plants have been built since the war. Titanium and magnesium production have been installed. The region's several small, scrap based steel mills remained competitive through conversion to electro-processing. An obsolete copper smelter-refiner and lead-zinc smelting complex had lives extended by availability of low priced power.

Plywood, a rarely employed, near exotic, building material prior to World War II, came into massive use as a consequence of global war construction needs. The quality of Pacific Coast Douglas Fir made it the preferred--indeed, virtually exclusive--raw material. So capacity installed during the war remained on stream and was supplemented in postwar years, providing a major market for Northwest forests and a position of absolute advantage that remained until the introduction of slicing tools to supplement peeling and the development of superior adhesives, both in the late nineteen-fifties, permitted use of inferior woods that allowed other regions to overcome the Douglas Fir region's plywood monopoly.

Corrugated kraft packaging was also developed during World War II, to provide light, strong containers for air transportation; and it provided another impetus to Northwest forestry. Previously, distance from markets, lack of strength of short fibred spruce and hemlock wool pulp, and the high resin content of Douglas Fir restricted Northwestern pulp production to dissolving grade pulps for national market and regional markets for packaging and newsprint. With wide use of corrugated boxes and employment of sulfate pulping, Douglas Fir provided an adequate raw material source. The high value of the species as timber and plywood prohibits its exclusive use as pulpwood, but the scale of northwest timber production results in enormous quantities of factory residues that may be converted into wood chips for pulping. So residue-based kraft pulp from the Northwest early established a cost advantage that overcame unfavorable transportation charges to make it competitive in national markets.

Multi-engined aircraft have become the region's most significant contribution to the world economy. Building on the experience gained in fabricating World War II's preeminent heavy bombers, the Boeing Co. has produced four generations of commercial jet aircraft, each generation becoming the predominant airplane of its type in use by all the world's airlines. Supplying equipment and technical knowledge to support that production has brought about the expansion of metal working, instrumentation, engineering, and training occupations that extend the income producing influence of aircraft production far beyond its direct employment impacts.

Nuclear related industries, centered upon the Federal reservation at Hanford, concentrated on production of weapons grade plutonium but, of necessity, extended into uranium processing, power production, waste disposal and a variety of research and development activities that have kept the Northwest at the forefront of nuclear engineering.

Each of those industries came into being, or was vastly expanded, in the years 1941 through 1945. Superimposed upon the region's timber production and dry farming, they created a strong, diversified industrial base built on natural resources and a skilled labor force rather than propinquity to markets. The consequence was a level of personal income in Oregon and Washington and in the region as a whole that was distinctly above national standards--a level of income that was to encourage continuing immigration and expansion of local markets in the decades that followed.

Table 2
Comparative Per-capita Personal Income, 1945

	1983 Dollars per Person
Alaska	NA
Idaho	6245
Oregon	7451
Washington	7773
Region 10	7484*
US	6782

* Excludes Alaska

4. Comparative Income Shifts

Though the income producing advantage that the Pacific Northwest established in the early nineteen-forties has narrowed in succeeding years, it persisted into the nineteen-eighties. Per-capita income in Region 10 in 1983 was $12,349, compared to $11,675 for the nation as a whole. The degree of advantage in somewhat inflated by high Alaskan price and income standards, and particularly by the effects of Alaska's petroleum boom. For Pacific Northwest states the advantage narrows to the difference between the national $11,675 and $12,062.

Even that reduced regional advantage is partly illusory, however, an artifact of above average income in Washington, which contains 54% of the region's population. Idaho has remained, and Oregon has dropped, below the nation in average income; and the unfavorable disparity seems to be widening. The pattern of substandard income growth in the region was established in the late nineteen-forties. It can be traced by measuring the constant dollar gap between average state personal income and average national personal income in the last year of each of the income growth periods distinguished earlier.

Table 3
Difference Between State and National Mean Income

	Mean State Income Minus Mean U.S. Income, 1983 Dollars			
Year	Alaska	Idaho	Oregon	Washington
1946	NA	-260	+622	+709
1952	+2,849	-391	+586	+807
1961	+1,225	-1,193	+26	+655
1970	+2,005	-1,616	-600	+260
1983	+5,145	-2,333	-755	+376

To a degree the progressive reduction in relative regional income producing strength could have been anticipated. The region's prosperity was built upon efficient exploitation of basic natural resources--timber, arable land, falling water--and a skilled, well paid labor force. Low population density and distance from markets hindered development of fabricating industries and specialty services. And the well paid skills of the labor force discouraged emplacement of labor intensive industries not related to specific regional advantage.

Nonetheless, personal income rose with the rest of the nation well into the seventies--more slowly than the rest of the nation, it is true, but from a higher base. That is no longer true. Since 1974, while the national mean income has been rising sluggishly, only Washington among Region 10 states shows any mathematical propensity to continue to increase average income. Both Oregon and Alaska display an essentially flat--though within broadly fluctuating ranges--income trends. Per-capita income in Idaho has indisputably been falling.

Table 4
Trend of per-capita Personal Income, 1974-83

	Linear Slope 1983 Dollars	Coefficient of Correlation
U.S.	+11	.66
Alaska	-25	-.06
Idaho	-85	-.66
Oregon	-4	-.03
Washington	+61	.36

The indication that potential problems are posed by substandard personal income in two of the four states of the region, and by something between substandard growth and actual decline in three of the four, is reinforced by other observations about the economy of Region 10 over the last ten years.

Since the fourth quarter of 1974, at least three, and more often all four, states of the region have been listed each month among the ten states with highest unemployment rates.

Major plant closures have occured in non-ferrous metals, food processing, pulp and paper, lumber and plywood. The majority of minor lumber mills have closed.

The Pacific Northwest has accumulated massive excess capacity to generate electricity, and had begun to market it aggressively to both extra-regional customers and local electro-process industries. The region has for several years been attempting to sell energy well below the marginal cost to generate and transmit in order to meet fixed costs, and to subsidize weakened local industries.

The region's largest commercial bank was saved from failure by a negotiated buy out at distress terms by an out of region bank. Its largest thrift institution was similarly saved by forced merger. More than a half dozen small banks have failed.

Since these dismal events have occurred in a context of national recession and only partial recovery, there is a tendency to attribute the region's poor economic performance over the last decade to business cycle mechanisms. And the longer term weakness of comparative income growth has sometimes been viewed complacently as the inescapable consequence of an economy in pursuit of equilibrium--the normal regression of income variations toward central values.

A less comfortable hypothesis is possible. Evolutionary economic forces may have progressed in directions that reduce the comparative advantage enjoyed by the region in the last half century. In that case, neither business cycle upturn nor national economic growth can be depended upon the restore the region's high relative affluence.

There is not enough evidence to make any of the possible explanations of the region's economic problems wholly persuasive. But examination of the comparative dimensions of shifts in income sources can make it easier to appreciate the changes the region has experienced in the last decade, and may provide insights into the possible direction of its immediate future.

5. Shifts in Industrial Sources of Income

It is possible to trace the development of an economy with considerable precision by comparing the amount and composition of its gross internal product or income over time. Such a comparison is attempted for sources of U.S. personal income in table 5.

Table 5
Industrial Sources of Personal Income

	Fraction of Gross Personal Income		
	1972	1979	1983
Agriculture, Forestry, Fisheries	.028	.024	.012
Mining	.008	.012	.012
Construction	.050	.047	.038
Manufacturing: Durable Goods	.079	.069	.064
Non-durable Goods	.132	.130	.103
Trans., Communication, Utilities	.057	.058	.055
Total Goods-related Sources	.354	.341	.283
Wholesale & Retail Trade	.130	.125	.116
Banking & Financial Services	.043	.044	.045
Other Private Sector Services	.120	.128	.143
Government: Military	.020	.011	.013
Federal Civilian	.035	.029	.028
State & Local	.087	.082	.081
Total Service-related Sources	.434	.420	.425
Transfers (net of contributions)*	.073	.087	.104
Portfolio Income	.140	.153	.185
Gross Constant Dollar Personal Income	1.000	1.186	1.215
Per-capita Constant Dollar Personal Income	1.000	1.105	1.025
*Gross transfers	.109	.129	.148

The outlines of the decade are clearly delineated. Personal income rose on both an aggregate and per-capita basis between 1972 and 1979. Between 1979 and 1983 aggregate income growth was insufficient to maintain per-capita income.

Goods producing industries sustained a relative loss of ability to produce income. The deterioration was most pronounced in the case of agriculture, where a sustained 1983 drought in the midlands and a record freeze in the southeastern states exacerbated price and financial difficulties of the nation's farmers. Mining was alone in the goods producing sector in sustaining its share of income production; but that record was uneven. Strong gains in income derived from petroleum extraction throughout the period offset widespread weakness in other mining activities.

(With apologies to London and all Offices of Economic Development everywhere)

Contrary to the popular wisdom, which increasingly tends to portray the U.S. as a society in transition from a base in goods production to one based on services, incomes produced from service related sources were a near constant portion of the total in each of the three years. Gains by Financial and miscellaneous services sectors were offset by losses in government and trade. ("Military" income is somewhat deceptive, in that it includes only direct payments to the armed forces. The steep drop in military share of national income between 1972 and 1979, then, reflects the interruption of conscription and end of the Viet Nam war. Vastly larger procurement values are distributed through other income producing categories, notably manufacture of durable goods.)

Growth in share of income sources was concentrated in two areas. Income from dividends, interest and rent rose enormously under the influence of rising interest rates. And transfer income rose almost as much--a consequence of rising unemployment compensation disbursements and the effects of pensions on an aging population whose oldest component's principal source of income is a Social Security system indexed for inflation. (Perhaps the conventional wisdom needs revision. We may not be shifting from a nation of farmers, steel puddlers, hard rock miners and loggers to one in which beauticians, lawyers, janitors and media consultants predominate. The numbers indicate that it is more likely that we may all be evolving to be pensioners, rentiers, or on the dole.)

The temporal referents were selected deliberately, each intended to represent a significant point in contemporary economic dynamics.

The concept underlying use of the years 1972, 1979 and 1983 is that 1973 was a watershed year for the international economy. The transition of OPEC from a loose deliberative body to an active cartel in that year resulted in an order of magnitude increase in petroleum price. The effect on the world economy of the massive increase in the price of the most basic of all industrial raw materials was a chain of price increases, inventory building, enhanced demand for working capital, higher interest rates, and, ultimately, trade and exchange restrictions. Thus 1972 was chosen as the last year of the old economic regime; the year that ended the postwar period of growth and affluence for the industrialized nations and launched us on a new course whose coordinates remain to be determined.

The choice of 1979 is somewhat arbitrary. The rapid inflation --centered upon raw materials but quickly disseminated through the economy--of 1973 and 1974 was interrupted briefly by a short, intense inventory recession in 1975. Price rise resumed in 1976, continued--perhaps fed, perhaps controlled, by escalating interest rates--through 1979. Since 1979 economic output has been stagnant, raw material prices have been dropping relative to prices generally, unemployment has remained high, personal income has been falling. If the initial effect of OPEC's actions was inflationary prosperity, the longer term accommodation to that action has been deflation of the prices of raw materials and a stagnant economy.

Nineteen eighty-three was selected simply because it is the most recent year for which information is available.

The period has been, for obvious reasons, a time of obsession with price. OPEC's actions upset three decades of international price consensus; and subsequent radical shifts in the time value of money extended, and diverted the course of, the price perturbations that OPEC had introduced.

The course of those price shifts may be reduced to a simplified series. Raw materials generally adjusted quickly to higher petroleum prices. The prices of other fuels rose as rapidly as petroleum products; agricultural and forest products and metals nearly matched them. Inevitably, prices of finished goods, transportation, labor, and--above all--interest rates were caught up in the inflationary spiral.

A process of adjustment set in after the 1975 recession. The price of petroleum continued to rise, as did those of most finished goods and services. Interest rates increased systematically. But raw material prices generally faltered. After 1979, raw materials were in often excess supply, and prices began to fall. By 1982 even petroleum's price was sinking, as OPEC price discipline unravelled. But neither interest rates nor goods for final consumption mirrored the deflationary trend.

A classic scissors crisis has evolved in the nineteen-eighties. Regions and industries producing basic materials have suffered as the prices of their output has fallen, while the prices of the finished goods and financing needed to produce them have continued to rise. The economies of some nations that had long since emerged from third world status-- Argentina, Chile, Mexico, Brazil, Nigeria among them--have come to the point of near collapse. The situations of three of the four Region 10 states, producers of foodstuffs and industrial raw materials, is not unlike, though certainly less severe than, the one faced by such nations.

The price record of broad commodity groups significant to Region 10 is summarized in terms of index numbers in table 6.

Table 6
Price Index Numbers, 1972, 1979, 1983

	1972 Mean Value = 100		
Factor	1972	1979	1983
Consumer Prices	100	173.5	238.2
Long Term Interest Rates			
Home Mortgages	100	133.6	167.0
Aaa Corporate Bonds	100	141.8	165.4
Industrial Commodities			
Raw Fuels	100	341.4	626.4
Fuels & Power	100	344.1	561.5
Farm Products	100	193.1	198.6
Lumber & Wood Products	100	208.2	213.0
Pulp & Paper	100	193.1	262.5
Metal & Metal Products	100	210.0	248.7

6. Shift Analysis

All of the preceding has been background, an attempt to establish the economic environment in which Region 10 states functioned during the last decade, to outline what was happening to the whole in order to distinguish the consequences for some of the affected parts.

The method for assessing the recent (1972-1983) development of the economies of the states of Region 10 is comparative shift analysis--calculation of the degree of difference and of change in economic circumstance specific to each state. The variable used to measure those changes is gross personal income, expressed in dollars of 1983 purchasing power.

Some definitions are in order.

Basic industries, for the purposes of this study, are those whose portion of state personal income production is equal to or greater than the proportion of national personal income produced by the same industries. They are, then, industries in which the particular state is theoretically self sufficient or produces a surplus for export. Traditionally, only goods producing industries--for some purposes the distinction was reserved for resource based industries--were considered to be basic. That view is clearly outdated. The financial services supplied by New York, the recreation by Las Vegas, the education by Boston, the religion by Salt Lake City constitute basic industries for each of those communities, sources of occupation and income and of a surplus that is exchanged for the production of other communities.

Secondary industries are, simply, those which are not basic. Their shares of state output are less than the shares of national output that the same industries compose. They are industries which may either have a local demand pattern that varies from the national or whose local output the region must supplement with imports.

Shift is a quantitative change in whatever variable is being considered. In the analysis that follows, three sources of shift are distinguished.

Growth, which may be positive or negative, refers to percentage change in gross national personal income between two points in time. As the concept is employed in this analysis, it is a computational device needed to isolate more significant shifts that have occurred as a consequence of internal changes in the economies of Region 10 states. The calculation logic is that a state can maintain its proportional share of national income production without internal change only if each industry in that state has its own income production altered in the same measure as national income. Thus national growth becomes the norm by which internal shift may be measured.

Sectoral shift involves a change in the proportion of national gross personal income that is provided by a given industry. Sectoral shifts may involve productivity change or alterations in demand that result in change in income producing strength of an industry, relative to other industries. Sectoral change, like growth, is national in scope. The degree in which it is effected in any location may vary significantly from the norm; its calculation is based on national experience.

Shifts in advantage are those which change the economic specialization of a given segment of the economy—in this case, the Region 10 states. Where growth and sectoral shifts represent participation in national economic trends, shifts in state advantage measure the economic change that is peculiar to the state and alters its economic base. (In a larger sense, it is the sum of all of the shifts in advantage among trading partners that creates the growth and sectoral shifts that are the stuff of economic dynamics.) In calculation, shift in advantage is a residual. It is the value that remains after the affects of growth and sectoral shift have been subtracted from total change.

A. Overview
   I. Growth

As previously noted, growth of personal income since 1972 had been uneven. In the initial seven year period of raw materials inflation, U.S. personal income rose from $944.585 billion in 1972 to $1.943 trillion in 1979. Adjusted for purchasing power change with the Consumer Price Index, the increase was from $2.2495 trillion of 1983 purchasing power to $2.6677 trillion, or 18.59%. Personal income in 1983 of $2.734 trillion, was only 2.49% above the price adjusted 1979 level.

Region 10 States, with their extreme economic dependance on raw materials and first stage processing, shared spectacularly in the earlier period of rapid income growth. As a group, they more than doubled the national rate of increase. Since 1979, their relative performance has been poor. (Though Alaska continues to lead the nation in growth of personal income.)

Table 7
Shift in Aggregate Personal Income

Location	Personal Income Billions of 1983 Dollars 1972	1979	1983	Shift 1972-79	1979-83
U.S.	2249	2668	2734	.186	.025
Alaska	4.018	6.284	8.238	.564	.311
Idaho	6.806	8.142	9.450	.196	.161
Oregon	22.522	30.658	28.585	.361	-.068
Washington	37.101	51.726	52.368	.394	.012
Region 10	70.447	96.810	98.641	.374	.019

The form of the comparison over simplifies the relationships. It conveys neither the elevated rate of immigration that diluted income growth in Region 10, nor shifting year to year changes in economic performance. Thus Washington, like the U.S., experienced its best year in terms of income per person in 1979. Its neighbors peaked earlier, Oregon and Idaho in 1978, Alaska in 1976; and all four Region 10 states have a negative overall trend of per-capita income since 1976.

Table 8
Comparative Per-capita Personal Income, 1972-1983

	Income per Person, 1983 Dollar Equivalents				
	U.S.	Alaska	Idaho	Oregon	Washington
1972	10,752	12,589	9,304	10,352	10,779
1973	11,232	13,685	10,136	10,840	11,436
1974	11,007	14,504	10,282	10,775	11,367
1975	10,814	17,684	9,699	10,593	11,500
1976	11,143	18,769	9,888	11,144	11,937
1977	11,482	18,030	10,010	11,505	12,217
1978	11,873	16,731	10,449	11,978	12,870
1979	11,880	15,577	10,108	11,894	12,894
1980	11,490	15,615	9,725	11,311	12,329
1981	11,592	16,227	9,673	10,927	12,173
1982	11,457	17,129	9,223	10,558	11,833
1983	11,675	16,820	9,342	10,920	12,051
Linear trend since 1976	-234		-125	-120	-45
Coefficient of Correlation	-.51		-.76	-.59	-.28

II. Sectoral Shift

The shift analysis is conducted in terms of thirty-three variables--twenty-nine income producing industry groupings and four forms of income transfer--and two time periods. An abbreviated list of the variables involved--which have been distinguished because of their relevance to Region 10--has been presented in Table 5.

While that table provides a broad outline of the forces that are altering the nation's and the region's economic base, a clearer picture emerges if all twenty-nine industries are considered, with change highlighted by eliminating the complication presented by transition year 1979. Sharp differences in the direction and degree of sectoral shift emerge from such an array.

Negative growth was demonstrated by eleven of twenty-nine industry groups that together produced over a quarter of the nation's 1972 personal income. Although constant dollar gross personal income increased 21.5% between 1972 and 1983, those industries were able to produce less income for their owners and workers in 1983 than they did in 1972.

Industry	Fraction of 1972 Income Production	Shift in Income Production 1972-1983
Farming	.0260	-.561
Other Durable Goods*	.0225	-.332
Primary Metals	.0165	-.282
Textiles & Apparel	.0159	-.241
Military	.0197	-.219
Furniture & Fixtures	.0040	-.150
Stone, Clay & Glass	.0073	-.136
Construction	.0498	-.085
Food Processing	.0171	-.061
Fabricated Metals & Mchry.	.0388	-.056
Federal Civilian Govt.	.0349	-.043

* includes autos and automotive equipment

Declining growth characterized five industries accounting for 13% of personal income, whose income production increased, but at a lesser rate than population (10.2%), indicating a reduction in per-capita demand for their domestic products.

Industry	Fraction of 1972 Income Production	Shift in Income Production 1972-1983
Retail Sales	.0825	.007
Lumber & Wood Products	.0057	.008
Other non-durable Goods	.0209	.051
Paper & Allied	.0077	.071
Chemical & Allied	.0135	.094

Normal growth was demonstrated by five industries, whose aggregate share of personal income in 1972 was just over 17%. The group's growth is considered to be normal, in that its income production exceeded increase in population without exceeding the overall increase in personal income.

Industry	Fraction of 1972 Income Production	Shift in Income Production 1972-1983
Mining	.0045	.112
State & Local Government	.0866	.131
Electric & Electronic Eqpt.	.0201	.147
Transptn., Comctn., Utilities	.0574	.173
Petroleum Refining	.0035	.195

Above average growth occured in eight industries that supplied more than 23% of 1972 personal income. Half of the eight were service industries.

Industry	Fraction of 1972 Income Production	Shift in Income Production 1972-1983
Wholesale Trade	.0472	.224
Non-bank Financial Svces.	.0326	.231
Transportation Eqpt.*	.0116	.259
Other Services	.1202	.443
Banking	.0105	.444
Agricultural Services, Forestry, Fisheries	.0024	.535
Instruments	.0053	.563
Petroleum Extraction	.0031	1.968

* excludes autos & automotive equipment

3. Basic Industries

Table 9 lists the basic industries and a calculation of the exportable surplus of Region 10 states in 1972. Two aspects of the listing are worth note. Basic, or export, industries accounted for an extraordinary portion of the personal income of the region. And the bulk of both the basic industries of the region and of the income that they provided was concentrated in activities that were to experience negative or declining growth in the next decade.

Table 9

Region 10 Basic Industries, 1972

(All values in Millions of 1983 Dollars)

	Personal Income Produced							
	AK		ID		OR		WA	
Source	Total	Advtge	Total	Advtge	Total	Advtge	Total	Advtge
Farming			745	568	653	67	1276	311
Agtl. Svces, Forestry, Fisheries	71	61	29	13	86	32	162	73
Oil & Gas Extraction	86	74						
Other Mining			71	40				
Construction	410	210	402	63	1167	45		
Mfg. Food & Kindred	79	10	267	151	488	103	643	9
Paper Allied	40	9			271	98	529	243
Lumber & Wood Pdts.	67	44	338	299	1946	1818	1236	1025
Transportation Eqpt.							1691	1261
Tsptn. Communication Utilities	372	141			1436	143	2115	176
All Goods Related Sources	1125	549	1852	1134	6047	2306	7652	3098
Wholesale Trade					1267	204	1762	11
Retail Trade			650	89	2103	245	3170	109
Military	576	497	148	14			993	262
Federal Civilian Govt.	517	377	262	24			1550	255
State & Local Govt.	622	274			2224	274	3849	636
Service Related Sources	1715	1148	1060	127	3370	723	11,324	1273
Portfolio Income					3196	54		
Transfer Income			750	7	2572	113	4539	488
Contributions, Social Ins*							-1336	14
Transfers			750	7	5768	167	3203	502
Gross Advantage		1697		1268		3196		4873

* < U.S. Mean = advantage

The specialization of the economies of the Region 10 states is demonstrated by considering the proportion of its total personal income that each state derived in 1972 from its set of basic industries.

Alaska obtained 70.7% of gross personal income from industries that supplied 28.4% of national gross personal income.

Idaho derived 53.8% of gross personal income from industries that supplied 24.3% of national gross personal income.

Oregon obtained 67.4% of gross personal income from industries that supplied 38.2% of national gross personal income.

Washington, with the most diversified and balanced economy in Region 10, derived 59.8% of gross personal income from industries that supplied 39.9% of national gross personal income.

To intensify that high degree of dependance on a few basic industries, the three Pacific Northwest states concentrated their economic efforts to a very high degree in producing and processing the outputs of farms and forests.

	Personal Income in Millions of 1983 Dollars			
Source	Idaho	Oregon	Washington	PNW
Agriculture	745	653	1,276	2,674
Ag. Services, Forestry, Fisheries	29	86	162	277
Food Processing	267	488	643	1,398
Lumbering	338	1,946	1,236	3,520
Pulp & Paper	31	271	529	831
Sum	1,410	3,444	3,846	8,700
Percent of 1972 Personal Income	20.7	15.3	10.4	13.1
Percent of goods-related Income	55.4	43.3	33.3	39.4
Percent of Gross Surplus	111.2	107.8	78.9	93.2

It was that element of basic industry concentration in resource based activities that made the region so sensitive to the scissors crisis in pricing that developed after 1979, and resulted in the high proportion of regional personal income from basic industries that were characterized by negative or declining sectoral shifts between 1972 and 1983.

	Percent of 1972 Basic Industry By Growth Category*			
	Negative	Declining	Normal	Growth
Alaska	55.7	3.8	35.0	5.5
Idaho	51.2	27.7	2.0	0.8
Oregon	15.2	28.5	24.1	8.9
Washington	20.1	22.2	26.9	16.3

* excludes transfers

B. Alaska

For Alaska the period under study can only be described as a boom. Between 1972 and 1983 the state's population more than doubled, constant dollar gross personal income increased more than fifty percent.

That growth--which is characterized for Alaskan basic industries in table 10A and for secondary industries in table 10B--derived from a single source, exploitation of North Slope petroleum deposits. The Alyeska Pipeline was installed, and drilling platforms emplaced, between 1974 and 1977. In 1977 North Slope oil began to find its way to market.

The transforming effects of the development of arctic oil deposits on the economy of Alaska is difficult to appreciate. Popular folklore has been so full for so many years of the treasury of natural resources that Alaska constituted that there was little recognition of how poor or how undeveloped the state truly was until OPEC drove oil prices to a level that made exploitation of the North Slope deposits commercially feasible. Before the pipeline, the state supplied a viable fishery, a fragile and subsidy dependant forest products industry, episodic mining, and a dwindling petroleum producing industry whose combined production of personal income in 1972 was less than $350 million 1983 dollars. In the same year, over a billion dollars--no less than 27% of gross personal income of the state--was derived from Federal Government payments to its civilian and military employees. Government was the state's largest industry, the dominant force in its economy.

The $368 million per year (constant 1983 dollars) increase in personal income from petroleum extraction provided by North Slope deposits by 1983 more than matched the total personal income generated by all production and processing of raw materials in Alaska in 1972; but the sum only partially conveys the source's direct contribution to the state's economic growth.

Substantial growth of income from transportation, communication and utilities and from construction must also be traced to oil. In the one case, pipeline operation and maintenance and operation of storage, berthing and loading facilities for crude oil relate to the demand for petroleum movement: in the other, provision for the physical infrastructure of the enlarged oil and oil handling industries has been a major demand factor.

Still a third industry must be recognized to owe a major portion of its growth to North Slope oil. Oil royalties and fees collected by Alaska have allowed the state to eliminate its income tax. Roughly 85% of state government income is derived from oil revenues; and 75% of local government revenues are obtained from the state, so may be considered to be oil revenues once removed.

Table 10A

Alaska, Basic Industry Shifts

	Millions of 1983 Dollars								
		Shift, 1972-1979				Shift, 1979-1983			
Source	1972	Growth	Sectoral	Advantage	1979	Growth	Sectoral	Advantage	1983
Agctl. Svces, Forestry Fisheries	71	13	5	-41	48	1	-2	-5	42
Oil & Gas Extraction	86	16	21	202	325	8	11	110	454
Construction	410	76	-16	97	567	14	-81	617	1117
Mfg: Food & kindred Pdts.	79	15	-14	101	181	5	-13	-38	135
Paper & Allied	40	7	-3	4	48	1	-4	-11	34
Lumber & Wood Pdts.	67	12	3	10	92	2	-12	-9	73
Tsptn., Communication, Utilities	372	69	6	287	734	18	-24	63	791
Goods Related Sources	1125		2	660	1995		-125	727	2646
Military	576	107	-54	-206	423	11	12	-11	435
Federal Civilian Govt.	517	96	-36	-49	528	13	-13	-44	484
State & Local Govt.	622	116	-27	343	1054	26	-2	275	1353
Service Related Sources	1715		-117	88	2005		-3	220	2272
Total Basic Industries	2840		-115	748	4000		-128	947	4918

Table 10B

Alaska, Secondary Industry Shifts

		Shift, 1972-1979				Shift, 1979-1983			
Source	1972	Growth	Sectoral	Advantage	1979	Growth	Sectoral	Advantage	1983
Agriculture	5	1	-6	7	7	-	-7	1	1
Mining	12	2	9	-5	18	-	-15	31	34
Mfg. Textiles & Apparel	-	-	-	-	-	-	-	1	1
Chemicals & Allied	10	2	-4	11	19	-	-7	7	19
Petroleum Refining	5	1	1	4	11	-	-1	3	13
Other non-durables	17	3	-13	19	26	1	-8	19	38
Furniture & Fixtures	2	-	-2	-	-	-	-	1	1
Primary Metals	-	-	-	-	-	-	-	1	1
Fabricated Metal & Mchry.	5	1	23	4	33	1	-34	4	4
Electric & Electronic	-	-	-	-	-	-	-	1	1
Tsptn. Eqpt.	2	-	6	-5	3	-	-	-	3
Stone, Clay & Glass	12	2	-3	-1	10	-	-10	17	17
Other Durables	-	-	-	4	4	-	-4	9	9
Goods Related Sources	70		11	38	131		-86	95	142
Wholesale Trade	121	23	23	33	200	5	-26	94	273
Retail Trade	312	58	-50	185	505	13	-50	187	655
Banking	40	7	3	27	77	2	12	3	94
Other Financial Svcs.	76	14	-	68	158	4	3	48	213
Other Services	398	74	50	275	797	20	120	184	1121
Service Related Sources	947		26	588	1737		59	516	2356
Contributions, Social Ins.	-210	-39	-33	-45	-327	-8	-16	-80	431
Residence Adjustment	-169	-31	-	-190	-390	-10	-	-179	579
Portfolio Income	260	48	85	227	620	15	261	20	916
Transfer Payments	288	54	123	46	511	13	159	230	913
Transfer Sources	169		175	38	414		404	-9	819
Total Secondary Industries	1186		212	664	2282		377	602	3317

Given that construction of direct impact of North Slope oil on the state's economic growth, it is possible to roughly calculate its amount. Eliminating external influences--national growth and sectoral shifts--incremental income from construction, transportation, communication and utilities, and state and local government added to incremental personal income from petroleum extraction produces a total of over $2 billion, or 49% of total growth of personal income in Alaska between 1972 and 1983, that can be traced directly to North Slope petroleum extraction.

Table 11
Personal Income Growth Attributed to North Slope Oil Production, 1972-1983

Source	Millions of 1983 Dollars
Petroleum Extraction	368
Advantage Shift	
Construction	714
Transportation, etc.	350
State & Local Government	628
Total	2060

But if Alaska's recent prosperity has had a single source, the magnitude of the source's income addition to a state with so small a population has induced broad expansion of secondary industries. The state, largely as a consequence of Federal Government incomes, has traditionally produced an income surplus--i.e. the sum of the positive advantages represented by its basic industries has exceeded the amount of the sum of the negative advantage of its secondary industries. With the income growth of the last decade, that surplus has increased. Calculations are presented in table 12.

Table 12
Shift in Alaska Income Surplus from Basic Industries

Source	Advantage, Millions of 1983 Dollars		
	1972	1979	1983
Basic Industries			
Goods Producing	549	1112	1611
Services Producing	1146	1280	1369
Secondary Industries			
Goods Producing	-776	-1107	-1157
Services Producing	-232	-174	-240
Gross Surplus	687	1111	1583
Net Transfers	-124	-132	-40
Net Surplus	563	979	1543

The strengthening of the general economy by petroleum derived incomes has been sufficient to raise a pair of secondary industries to basic status. In the case of retail trade, a $20 million negative advantage in 1972 was transformed to a $37 million positive advantage in 1979 that broadened to a $92 million advantage in 1983. The instance of banking is ambiguous. A slight negative advantage in 1972 was transformed to a slight positive advantage in 1979 that was again reversed in 1983. Though it is less than certain, Alaska seems to have achieved income parity in the development of its banking industry.

Perhaps more significant is a continuing drop in the net amount of negative transfer income. Historically, Alaska--because of a combination of high wage rates, labor shortage, and protracted summer work days--was a place for intermittent laborers to spend a summer accumulating funds that left the state with them, leading to persistent negative income transfers. In the last decade, a combination of rising portfolio income and a decline in contributions for social insurance relative to total personal income appear to to be minimizing, if not eliminating, that characteristic of Alaska's economy.

All developments of the last decade have not been positive. There has been a pronounced reduction of the income producing strength of the state's resource based industries other than oil. Depletion of fishery stocks--notably the luxury seafoods, king crab and salmon--has caused a loss of a portion of Alaska's advantage in that area. And the strength of the dollar has cut deeply into export-based forestry industries. Alaska's advantage in lumber and wood products in 1983 was $10 million, or 23%, lower than in 1972. In the case of pulp and paper, where export problems have been compounded by attrition of demand for chemical grade wood pulp, the loss of advantage has been more extreme. By 1983, paper and allied products had become a secondary industry, with a $22 million negative advantage.

C. Idaho

Idaho's economy, after expanding vigorously in the five-year inflationary aftermath of the Arab oil embargo, turned sluggish in ensuing years. Personal income declined irregularly but persistently after 1978. Population growth was atypically high throughout the period, the state's inhabitants increasing by more than 200,000 persons, or greater than 26%, between 1972 and 1983. The consequence has been a condition in which per-capita income rose sharply in 1973 and 1974, fluctuated in a narrow range between 1974 and 1979, and has been sinking in the eighties. (cf Table 8.)

Much of the decline of Idaho's economy can be attributed to the general malaise of U.S. agriculture. As table 13 demonstrates, Idaho farm income has paralleled the year-to-year downward slope of national farm income. And while the downtrend has been significantly less steep for Idaho, agriculture is proportionately of far more weight to the state than to the national economy; so the effect of continuing agricultural recession has been more damaging to Idaho.

Table 13
Farm Proprietor's Income, 1972 to 1983, Idaho and the U.S.

	Millions of Dollars			
	Current Dollars		1983 Dollars	
Year	U.S.	Idaho	U.S.	Idaho
1972	20,956	261	49,906	622
1973	30,878	432	69,226	969
1974	23,852	534	48,188	1079
1975	22,422	257	41,506	476
1976	18,134	188	31,737	329
1977	17,962	71	29,531	117
1978	25,477	299	38,907	457
1979	32,440	481	44,527	660
1980	31,237	563	37,768	681
1981	38,792	605	42,495	663
1982	32,175	417	33,210	430
1983	25,740	492	25,740	492
Linear trend			-2,101	-24
Coefficient of correlation			-.66	-.33

Idaho's current economic difficulties do not end with agriculture. The state has a narrowly focused economy in which nine basic industries accounted for 54% of non-transfer income in 1972. Six of the nine experienced negative sectoral shifts between 1972 and 1979: eight of the nine experienced negative sectoral shifts between 1979 and 1983. Further, the proportionate development of the state's secondary industries is such that they also suffered a negative net sectoral shift in both periods. Thus, the configuration of Idaho's economy has made it highly sensitive to the combination of forces that has interrupted the nation's economic growth over the last decade.

Table 14A, which summarizes basic industry income shifts, demonstrates the static condition of the key components of Idaho's economy over the last decade. Net loss of advantage in basic industries compounded the effect of negative sectoral factors to produce a modest decline in gross personal income from basic industries, in spite of the narrowly stimulative effects of national economic growth. Transfers--enlarged by agricultural support payments as well as unemployment stipends--reduced the impact of basic industry income decline, but, as has been noted, were insufficient to sustain per-capita personal income.

Secondary industry shifts, detailed in Table 14B, reveal some anomalous patterns whose meaning is open to interpretation.

Secondary goods-producing industries displayed a propensity for strong relative growth. The absolute growth of the sector was limited to the period of inflationary expansion between 1972 and 1979; but Idaho has increased its advantage in a number of miscellaneous manufacturing areas--notably paper, fabricated metals, electric and electronic equipment--during the sectoral decline of U.S. manufacturing after 1979. It is unclear whether that modest sustained growth is linked to inertial effects of inflationary expansion in the Mountain States, or whether it represents a continuing movement of labor intensive manufacturing into low-income, low-wage regions. Whatever the source, the tendency, if it can be sustained, must be considered favorable to Idaho, in that it broadens the state's economic base and relieves some of the pressures created by exposure to price fluctuations in the uncertain agricultural and forestry industries.

Secondary service industries, which accounted for more than half of the state's gain in non-transfer personal income between 1972 and 1979, experienced no change in income producing ability after 1979. The sectoral strength of the group was offset by a significant negative shift in advantage that gave up a good portion of the robust growth of the previous seven years. The sharp distinction between the two time periods in the performance of secondary service industries would seem to demonstrate the dependence of such occupational groups on the health of basic industries. Theirs is a derived demand: when farm prices fall and the food processing plant goes to short shifts, the hamburger stand, and the town tavern, and even the local lawyer suffer.

Paradoxically, given the overall drop in income per person, secondary transfer income was a positive influence on personal income in Idaho in the last decade. The gain was concentrated in portfolio income--income from dividends, interest and rents. While the absolute gain in portfolio income is explainable in terms of rising interest rates, the shift in advantage in a state with a falling average personal income is puzzling.

Table 14A

Idaho, Basic Industry Shifts.

Millions of 1983 Dollars

Source	1972	Shift, 1972-1979 Growth	Sectoral	Advantage	1979	Shift, 1979-1983 Growth	Sectoral	Advantage	1983
Agriculture	745	138	-46	-177	660	16	-104	-80	492
Agctl. Svces, Forestry, Fisheries	29	5	7	3	44	1	-2	13	56
Mining	71	13	12	15	111	3	-17	18	115
Construction	402	75	-20	125	582	14	-93	-74	429
Mfg.: Food & Kindred Pdts.	267	50	-19	36	334	8	-15	-10	317
Lumber & Wood Pdts.	338	63	4	96	501	12	-14	-156	343
Goods Related Sources	1852		-62	98	2232		-245	-289	1752
Retail Trade	650	121	-65	54	760	19	-58	-42	679
Military	148	28	-70	16	122	3	14	-11	128
Federal Civilian Govt.	262	49	-47	41	305	8	-15	-27	271
Service Related Sources	1060		-182	111	1187		-59	-80	1078
Transfer Payments	750	139	160	127	1176	29	182	44	1431
Total Basic Industries	3662		-84	336	4595		-122	-325	4261

Table 14B

Idaho, Secondary Industry Shifts

Millions of 1983 Dollars

Source	1972	Shift, 1972-1979 Growth	Sectoral	Advantage	1979	Shift, 1979-1983 Growth	Sectoral	Advantage	1983
Petroleum Extraction	-	-	-	3	3	-	12	-12	3
Mfg.: Textiles & Apparel	5	1	-6	7	7	-	-7	-	-
Paper & Allied	31	6	-3	10	44	1	-5	17	57
Chemicals & Allied	45	8	-5	23	71	2	-8	-	65
Other Non-Durable	24	4	-17	52	63	2	-8	16	73
Furniture & Fixtures	7	1	-6	-2	-	-	-	7	7
Primary Metal	36	7	-3	-40	-	-	-	3	3
Fabctd Metal & Mchry	40	7	29	96	172	4	-116	122	182
Electric & Electronic	12	2	-14	-29	29	1	-1	18	47
Transportation Eqpt.	64	12	8	-81	3	-	-6	-10	7
Stone, Clay & Glass	26	5	-4	7	34	1	-15	-	20
Instruments & Related	-	-	-	1	1	-	4	-3	2
Other Durables	24	4	-28	75	75	2	-41	-30	6
Tsptn, Communication, Utilities	381	71	7	105	564	14	-27	-24	527
Goods Related Sources	695		-42	285	1066		-218	124	999
Wholesale Trade	269	50	-29	164	454	11	-30	-37	398
Banking	69	13	4	24	110	3	13	-11	115
Other Financial Services	138	26	-	64	228	6	4	-54	184
Services	722	134	64	175	1095	27	138	-55	1205
State & Local Govt.	588	109	-35	141	803	20	-16	-20	787
Service Related Sources	1786		4	568	2690		109	-177	2689
Contributions, Social Ins.	255	-47	-42	-58	-402	-10	-19	22	-409
Residence Adjustment	24	4	-	26	54	1	-	-	55
Portfolio Income	893	166	110	245	1414	35	300	104	1853
Transfer Sources	662		68	213	1066		281	126	1499
Total Secondary Industries	3143		30	1066	4822		.172	73	5187

The net effect of the various perturbations of Idaho's economy has been a slight alteration of the composition of basic and secondary industries. The state's relative dependence on a narrow set of basic industries, as measured by gross advantage, has actually increased over time, in spite of those industries' predominantly unfavorable sectoral trends. Some broadening of the basic group has occurred. Transportation, communications and utilities, secondary industries by a narrow margin in 1972, experienced sufficient growth in the 1972-1979 period to achieve basic industry status. And income from state and local governments in Idaho declined sufficiently less slowly than the national rate for the industry to raise it to basic status by 1983. Thus, though the state's array of basic industries has broadened somewhat, they remain a group that is characterized by negative sectoral shifts; so that their increased economic health does little to relieve the continuing downward drift of incomes.

Among secondary industries, the relative income producing vigor of secondary goods industries was insufficient to offset the erosion of basic industries, or the relative decline of secondary service industries. As a result, the narrow income surplus that Idaho industries produced in 1972 had become a deficit by 1979 that broadened in succeeding years. Yet, in spite of the reduced vitality of Idaho's goods and services producing industries, the State's net income surplus has expanded as a consequence of rising transfers. Continuing positive shifts in advantage for portfolio income and other transfers--notably farm income supplements--give the State's economy a flavor of an aging worker padding out progressively declining wage dollars with unemployment checks and the distribution of an annuity. Net transfers, which provided an astonishing 20.8% of Idaho's gross personal income in 1972, rose to 23.8% in 1979, 31% in 1983!

Table 15
Shift in Idaho Income Surplus from Basic Industries

Source	Advantage, Millions of 1983 Dollars 1972	1979	1983
Basic Industries			
Goods Producing	1134	1326	1076
Services Producing	128	112	78
Secondary Industries			
Goods Producing	-993	-1234	-1001
Services Producing	-235	-242	-325
Gross Surplus	34	-38	-172
Net Transfers	917	1424	1945
Net Surplus	951	1386	1773

D. Oregon

Oregon, with the most industrialized economy among the Region 10 states (19.7% of 1972 personal income was derived from manufacturing, as compared to 16.7% in Washington, 13.5% in Idaho, 5.9% in Alaska) has been brutally damaged by the post 1979 recession. Gross personal income of the state fell 6.8% between 1979 and 1983, while that of its neighbors was rising. As a consequence, average personal income fell from a level distinctly above the nation's to one distinctly below. And in the 1980's Oregon has begun to experience net emigration and a reduction in rate of population increase

Though problems are distributed throughout the state's economy, they center upon two industries, lumbering and construction. Oregon is the nation's leading lumber producer, and forest products industries provided almost 10% of 1972 gross personal income of the state. But 1983 income from lumber and wood products was less by the equivalent of $348 million than in 1972--a negative swing in income from a basic industry of almost the same absolute magnitude as the positive leverage imparted to Alaska's economy by North Slope oil. The negative leverage imparted by falling construction activity was even greater--a drop in income of over a billion 1983 dollars in a thirty billion dollar economy. Construction has been a basic industry in all Region 10 states since the depression, a consequence of above normal population and economic growth. But construction is the most volatile of industries; and the current decline in construction activity--felt in all three Pacific Northwest states, but most heavily in Oregon--has been both more severe and more protracted than in prior postwar inventory recessions.

To a large degree the sharp drop in income from construction in Oregon is not a source, but a consequence, of recession. Demand for construction is derived, it ebbs and flows with the expansion or contraction of other activities. In a circumstance in which construction is a basic industry, the swings from boom to bust and back again are invariably accentuated.

Construction's shrinkage was recapitulated in all of Oregon's basic industries, none of which increased its output of personal income between 1979 and 1983. This can be understood in part as a response to the severe shrinkage of the state's principal manufacturing industry; but it must also be recognized to be a consequence of the Portland Metropolitan Area's role in the larger Northwest economy.

Situated at the nexus of the three western railway systems with the intersection of Interstate 5 and Interstate 80, and providing the transition between Columbia River and Pacific Ocean navigation routes, Portland is the depot, warehousing, and wholesaling center for the interior Pacific Northwest, much of western Montana, and a part of Northern California. Except for the relatively self contained Puget Sound area, the commercial activities--and much of the specialty manufacturing--of the Columbia River Basin revolve in large measure around Portland. In particular, transactions involving lumber, plywood, and grain and other foodstuffs are concentrated in markets quartered in the Portland area. The consequence has been that the stagnation of the national economy, and in particular the virtual collapse of western

lumbering and the pains of western agriculture, have been reflected in a general reduction of the functions that the Portland area serves for the entire Northwest region. (Which is not to say that Oregon's economic difficulties have been most visible in Portland. In fact, the size and complexity of the metropolitan area's economy has, to a degree, insulated it from the worst features of the recession of the eighties. Hardship has been most severe in lumber towns, where intermittent operations and layoffs have curtailed personal income, or mill closures have eliminated a town's very reason for being.)

The breadth of Oregon's basic industry recession is detailed in quantitative terms in table 16A. Two aspects of the relationships deserve comparison with Idaho. Like Idaho, Oregon's basic service industries expanded vigorously in step with goods producing industries in the inflationary 1970s. And, like Idaho, those same industries contracted sharply when goods producing industries fell off--a demonstration that service occupations are as vulnerable to recession as reputedly more volatile manufacturing. Unlike Idaho, Oregon experienced a negative shift in advantage in the case of portfolio income. While income from dividends, interest and rent continued to rise with interests rates, the proportion of such income fell relative to national experience.

Another aspect of Oregon's economic adjustment to the recessionary eighties can be seen in table 16B, which reports income shifts associated with secondary industries. There is, as with Idaho, a tendency for secondary manufacturing industries to grow (though only in a relative sense) and for secondary service industries to shrink. Indeed, in Oregon's case the propensity was so pronounced that the share of state personal income derived from manufacturing rose from 19.7% in 1972 to 22.3% in 1983. Given the direction of sectoral shifts in the national economy in that time frame, the relative increase in income from manufacturing is a startling datum, but one whose significance is not readily apparent.

More than the other states of the Northwest, Oregon has experienced significant structural shifts as a consequence of the economic changes of the eighties. As noted above, the state's dependance on manufacturing has increased, in the face of a falling proportion of national income derived from manufacturing. By 1983, construction no longer qualified as a basic industry in Oregon, the state's share of income derived from construction dropping below the national norm--an event almost unprecedented in a western state. Conversely, instruments and related products expanded sufficiently to achieve and maintain basic industry status, as Tektronix and its sister firms in Portland's southwest suburbs broadened product lines and increased their shares of one of the few domestic manufacturing markets to expand in the eighties.

Table 16A

Oregon, Basic Industry Shifts

	Millions of 1983 Dollars								
		Shift, 1972-1979				Shift, 1979-1983			
Source	1972	Growth	Sectoral	Advantage	1979	Growth	Sectoral	Advantage	1983
Farming	653	121	-172	16	618	15	-314	174	493
Agctl. Svces, Forestry, Fisheries	86	16	25	58	185	5	-6	-44	140
Construction	1167	217	-77	542	1849	46	-280	-793	822
Mfg. Food & Kindred Pdts.	488	91	-71	16	524	13	-46	-17	474
Paper & Allied	271	50	-12	34	343	9	-14	-28	310
Lumber & Wood Pdts	1946	362	15	-40	2283	57	-43	-699	1598
Tsptn., Comctn., Utilities	1436	267	28	103	1834	46	-83	-150	1647
Goods Related Sources	6047		-264	729	7636		-786	-1557	5484
Wholesale Trade	1267	236	110	126	1739	43	-91	-230	1461
Retail Trade	2103	391	-245	447	2696	67	-174	-359	2230
State & Local Government	2224	413	-132	384	2889	72	-49	-201	2711
Service Related Sources	5594		-267	957	7324		-314	-790	6402
Portfolio Income	3196	594	414	503	4707	117	906	-34	5696
Total Basic Industries	14,387		-117	2189	19,667		-194	-2381	17,582

Table 168

Oregon, Secondary Industry Shifts

Millions of 1983 Dollars

Source	1972	Shift, 1972-1979 Growth	Sectoral	Advantage	1979	Shift, 1979-1983 Growth	Sectoral	Advantage	1983
Oil & Gas Extraction	-				-				-
Other Mining	40	7	46	-28	65	2	-51	22	38
Mfg.: Textiles & Apparel	90	17	-120	101	88	2	-60	34	64
Chemicals & Allied	60	11	-18	12	65	2	-23	4	48
Petroleum Refining	21	4	3	-5	23	1	-3	-17	-
Other Non-Durable	181	34	-64	117	268	7	-23	34	286
Furniture & Fixtures	76	14	-21	-11	58	1	-14	-45	-
Primary Metal	217	40	-12	132	377	9	-183	50	253
Fabctd Metal & Mchry	491	91	110	148	840	21	-352	156	665
Electric & Electronic Eqpt.	226	42	-31	-54	183	5	-3	71	256
Transportation Eqpt.	162	30	31	-23	200	5	-17	-188	-
Stone, Clay & Glass	100	19	-15	22	126	3	-46	-2	81
Instruments & Related	57	11	34	332	434	11	11	-74	382
Other Durables	181	34	-178	178	215	5	-123	209	306
Goods Related Sources	1902		-235	921	2942		-887	254	2379
Banking	229	43	15	14	301	7	40	-69	279
Other Financial Services	629	117	-	369	1115	28	11	-406	748
Services	2555	475	242	341	3613	90	417	-479	3641
Military	131	24	-264	197	88	2	43	-52	81
Federal Civilian Govt.	734	136	-178	71	763	19	-46	-4	732
Service Related Sources	4278		-185	992	5880		465	-1010	5481
Contributions/Social Ins.	895	-166	-159	-172	-1392	-35	-57	166	-1318
Residence Adjustment	179	-	-	303	-482	-	-	50	-432
Transfer Income	3196	594	592	-338	4044	101	555	194	4894
Transfers	2122		433	813	2170		498	410	3144
Total Secondary Industries	8302				10,992				11,004

The effect, in terms of net advantage, of the various shifts has been negligible. Oregon's economy shrunk. Its dependance on imported services grew; its dependance on imported goods remained constant. An increase in net transfers was necessary to balance the economy after 1979. But it is balance at a smaller aggregate level.

Table 17
Shift in Oregon Surplus from Basic Industries

Source	Advantage, Millions of 1983 Dollars 1972	1979	1983
Basic Industries			
Goods Producing	2203	3046	2206
Services Producing	589	960	782
Secondary Industries			
Goods Producing	-2438	-2908	-2417
Services Producing	-764	-615	-1041
Gross Surplus	-410	483	-470
Net Transfers	405	-479	578
Net Surplus	-5	4	108

E. Washington

Though is has not been entirely unscathed by the recession of the eighties, Washington's economic performance has been noticeably superior to that if its Pacific Northwest neighbors. Personal income did not begin to fall until 1980, when the nation as a whole slipped into recession, and after Alaska, Idaho and Oregon personal incomes has peaked. Per-capita personal income, which had been regressing toward the national mean through the seventies, has fallen less rapidly than for the nation in the period since 1979.

That superior performance was due in large measure to relative strength in Washington's basic industries. (c.f. table 18A) Basic service industries were particularly strong. Washington, with a 55% larger population, experienced a lesser loss of personal income between 1979 and 1983 from wholesale and retail trade than did Oregon; while income from governments--paced by significant expansion in both the military and state and local government categories--actually increased.

Basic goods producing industries, too, were strong, the value of their 1983 income production remaining distinctly above the 1972 level, in sharp distinction to both Oregon and Idaho. In a relative sense that strength was concentrated in agriculture, where personal income in 1983 was greater than in 1979. Specialty crops, particularly in the Walla Walla and Yakima areas, experienced both good harvests and rising prices that, on a statewide basis, offset the losses suffered by farmers producing grains, row crops, and meat animals. In an absolute sense, strength in transportation equipment, Washington's principal manufacturing industry, helped to sustain the aggregate level of personal income, particularly in the Seattle metropolitan area.

Somewhat surprisingly, strength in basic industries did not extend to secondary service industries. As in the cases of Oregon and Idaho, exceptional growth of secondary services in the 1970's could not be sustained into the 1980's, with negative shifts in advantage outweighing positive sectoral influences in both financial and other services. (c.f. table 188)

In common with the other states of the region, overall income producing power of Washington's secondary manufacturing industries dropped, but the state gained some advantage in every secondary manufacturing sector between 1972 and 1983. To a degree, the relative gain was a consequence of the fact that income from manufacturing decreased less rapidly in Washington than it did nationally after 1979. But in the cases of primary metals, fabricated metals and machinery, and petroleum refining the value of personal income produced in 1983 was greater than in 1972; and in the cases of chemicals, electric and electronic equipment, and instruments, value of income production in 1983 exceeded both 1972 and 1979, demonstrating both relative and absolute growth of those industries.

It was, in the main, external influences that produced Washington's strong comparative economic performance of the early eighties. (An exception should be noted for the entrepreneurship and economic planning of central Washington farmers, who made investments in such diverse crop groups as apple orchards, vineyards, asparagus, and onions to escape the prevailingly adverse demand patterns encountered by American agriculture.) It has been development of Alaskan oil, industrial preparation for war, and expansion of trans-Pacific trade that has benefitted the state of Washington.

Those benefits have been unequally distributed, focussed as they are on the port and industrial assets of the Puget Sound region. Timber based southwest Washington has recapitulated Oregon's economic distress; and the experience of much of agricultural Washington east of the Cascades has paralleled that of Idaho. But Puget Sound ports have been the staging area for both the construction of the Alyeska pipeline and for North Slope drilling. Seattle remains the focus of Alaskan wholesaling, trade with the lower forty-eight, and financial and professional services--though, as Alaska's economy has become dominated by its petroleum imbalance, much of the latter business has transferred to Tulsa, Houston, Dallas, and Los Angeles. Ordinance and military engineering has brought brisk business for the Boeing complex, Puget Sound shipyards, and the burgeoning electronics and instrumentation firms east of Lake Washington. Emplacement of the Trident submarine base has bolstered construction and service industries in the Kitsap Peninsula. And trade with the Orient, once composed predominantly of exports of aircraft and food grains, has advanced steadily with the progressive expansion of consumer imports from Taiwan, Korea, Japan, and, more recently, the Republic of China.

Table 18A

Washington, Basic Industry Shifts

Millions of 1983 Dollars

Source	1972	Shift, 1972-1979 Growth	Sectoral	Advantage	1979	Shift, 1979-1983 Growth	Sectoral	Advantage	1983
Farming	1276	260	-290	-151	1095	27	-576	607	1153
Agctl. Svces, Forestry, Fisheries	162	30	41	163	396	10	-10	-129	267
Mfg.: Food & Kindred	643	120	-119	126	770	19	-84	-4	701
Paper & Allied	529	98	-21	-40	566	14	-26	-	554
Lumber & Wood Pdts	1236	230	26	34	1526	38	-79	-373	1112
Transportation Eqpt.	1691	314	52	1027	3084	77	-31	-296	2834
Goods Related Sources	5537		-311	1159	7437		-806	-195	6621
Wholesale Trade	1762	328	186	428	2704	67	-168	-207	2396
Retail Trade	3170	589	-414	743	4088	102	-319	-110	3761
Military	993	185	-445	119	852	21	79	95	1047
Fed'l Civilian Govt	1550	288	-300	204	1742	43	-84	26	1727
State & Local Govt	3848	715	-222	296	4637	115	-89	224	4617
Service Related Sources	11,323		-1195	1790	14,023		-581	28	13,548
Transfer Income	4861	904	998	413	7176	179	1016	-376	7995
Total Basic Industries	21,721		-508	3362	28,636		-371	-543	28,164

Table 188

Washington, Secondary Industry Shifts

	Millions of 1983 Dollars								
		Shift, 1972-1979				Shift, 1979-1983			
Source	1972	Growth	Sectoral	Advantage	1979	Growth	Sectoral	Advantage	1983
Petroleum Extraction	2	-	-	-2	-	-	-	8	8
Other Mining	95	18	-78	62	97	2	-94	60	65
Construction	1717	319	-129	1523	3430	85	-513	-929	2073
Mfg. Textiles & Apparel	90	17	-202	214	119	3	-110	74	86
Chemicals & Allied	179	33	-31	94	275	7	-42	90	330
Petroleum Refining	69	13	5	12	99	2	-5	-9	87
Other Non-Durables	219	41	-109	270	421	10	-42	49	438
Furniture & Fixtures	69	13	-36	-24	70	2	-26	11	57
Primary Metals	429	80	-21	131	619	15	-335	181	480
Fabctd Metal & Mchry	495	92	186	-21	752	19	-644	542	669
Electric & Electronic	148	28	-52	104	228	6	-5	47	276
Stone, Clay & Glass	160	30	-26	49	213	5	-84	28	162
Instruments & Related	17	3	57	52	129	3	21	92	245
Other Durables	221	41	-300	204	166	4	-225	190	135
Tsptn., Comctn., Utilities	2115	393	47	270	2825	70	-152	-10	2733
Goods Related Sources	6025		-689	2986	9443		-2256	424	7844
Banking	357	66	26	93	542	13	73	-42	586
Other Financial Services	1124	209	-	331	1664	41	21	-381	1345
Services	4141	770	409	828	6148	153	765	-885	6181
Service Related Sources	5622		435	1252	8354		859	-1308	8112
Contributions, Social Ins.	-1336	-248	-269	-402	-2255	-56	-105	105	2311
Residence Adjustment	322	60	-	334	716	18	-	20	754
Portfolio Income	5115	951	698	785	7549	188	1660	408	9805
Transfer Sources	4101		429	717	6010		1555	533	8248
Total Secondary Industries	15,748		175	4955	23,807		158	-351	24,204

The end result has been that the State of Washington's economy has changed slightly in composition. It has simply grown steadily larger. The only alteration in the balance of basic and secondary industries that has occurred is a resumption of construction's basic industry status after 1972, when lingering effects of Seattle's "Boeing mini-recession" had consigned it briefly to the ranks of secondary industries. A prevailing deficit in income balance from industrial sources has persisted, with a practically constant value of transfer income sufficient to produce a net income surplus from the state.

Table 19
Shift in Washington Income Surplus from Basic Industries

Source	Advantage, Millions of 1983 Dollars 1972	1979	1983
Basic Industries			
Goods Producing	2921	5082	4160
Service Producing	1272	1205	1249
Secondary Industries			
Goods Producing	-4476	-5822	-4534
Service Producing	-438	-527	-1835
Gross Advantage	-721	-62	-960
Net Transfers	1085	777	1109
Net Advantage	364	715	149

7. Striking a Balance: Some Qualitative Considerations

It is clear that the period since the imposition of the Arab oil embargo has been a time of change for the economies of the Region 10 states. It is not so clear what the nature of the change has been.

Trends have been contradictory. A period of inflationary expansion that was focussed on the raw materials that form the base of the regional economy has been followed by a recessionary interlude characterized by raw materials price deflation. Regional economic processes have been obscured by a pronounced decline of American heavy industry, massive expansion of Alaska's economy following the opening of its Arctic oil deposits, and the existence of substantial differences in economic specialization among the states of the region.

Thus the numbers presented to this point have been confusing, with shifts in advantage and sectoral shifts exaggerated by the economy's sudden transition from expansion to recession, with both forces expressed predominantly in the agriculture, timber, and energy resources that the region specializes in supplying.

Table 20 represents an effort to eliminate some of the confusion by integrating the two sub periods and altering the mode of shift calculation to present the net effect of changes that took place between 1972 and 1983.

Table 20
Net Shifts in Region 10 Personal Income, 1972 and 1983.

	Net Shift, Millions of 1983 Dollars					
Source	Idaho	Oregon	Wash	PNW	Alaska	Region 10
Agctl, Forestry, Fisheries	-136	193	469	526	20	546
Mining	2	-151	-221	-370	363	-7
Construction	56	-249	513	320	724	1044
Mfg.: Food & Kindred Pdts.	57	9	96	162	60	222
Forest Products	27	-322	-121	-416	-2	-418
Other Non Durables	70	64	414	548	43	591
Primary Metals	-2	141	223	362	19	381
Electric, Electronic	-3	221	136	354	-23	331
Transportation Eqpt.	-68	-230	1031	733	-11	722
Other Durables	195	456	495	1146	57	1203
Tsptn, Comctn., Utilities	79	-12	250	317	379	696
Trade	53	70	812	935	450	1385
Financial Services	9	-106	-3	-100	142	42
Government	150	310	795	1255	534	1789
Other Services	121	-113	65	73	509	582
Net Shift	610	281	4954	5845	3264	9109

Transfers are ignored. The values presented are the differences in the income production of industrial aggregates between actual production that occured in 1983 and the income that the industry category would have produced if, a) the state's economy had been configured precisely like that of the nation in 1972 and, b) income production of each industrial group in 1983 had changed from 1972 in the same degree and direction that it did for the nation.

A glance at the final row of the table reveals a positive value in each column. Thus--discounting effects of transfers-the economy of each Region 10 state is found to have grown at a faster rate than the national economy between 1972 and 1983. (Which is another way of saying that the expansionary effects of the period that ended in 1979 have continued to outweigh the consequences of the subsequent recession, to this time.)

And that provides an initial conclusion about regional economic performance. The relative decline in well being of inhabitants of the Pacific Northwest--as measured in the reduction of their per-capita incomes--traces to above normal population growth rather than to economic stagnation. The regional economy has performed relatively strongly, but not sufficiently so to meet the expectations of all of the people who have stayed in the area or have been induced to move into it.

A second conclusion is less obvious, and somewhat surprising. Running counter to national trends, the region has increased its degree of industrialization--that is, it is dependant on manufacturing for a larger portion of its personal income today than it was in 1972. To an extent, the apparent industrialization of Region 10 must be conceded to be a mathematical artifact: income from a number of regional industries failed to fall as fast after 1979 as did that from their national counterparts. Nonetheless, aggregate growth of manufacturing income of the region was sufficient to compensate for the loss of income from forest products manufacture, still the principal manufacturing industry, and to increase the proportion of non-transfer personal income derived from manufacturing.

In similar fashion, the region's share of national production of declining farm income increased, as did its share of income from construction, transportation, communication and utilities. Goods related industries produced over 58% of the region's 1983 net marginal income increase over 1972. Thus it may be conjectured that Region 10's exposure to further down turns in the business cycle has been enhanced, that its future economic stability may be even less than in the past, when notoriously cyclical forest products industries were more dominant than they are today.

The largest single component of the region's net increase in personal income has been government. For the nation, constant dollar income derived from government in 1983 had increased less than 4% over 1972, with a 10.7% reduction in Federal civilian and military sources of personal income slightly overmatched by a 13.1% increase in income from state and local governments. In Region 10, a 30% increase in income from state and local governments was sufficient to produce a 17.9% increase for the total government sector.

High tech industry categories, the current darling of industrial development interests, have been one of the sources of the relative strength of regional manufacturing. Electric equipment, electronic, and instrument industries added $350 million to the Pacific Northwest's $5.8 billion positive net shift in personal income, an amount equal to just under half the net shift contributed by transportation equipment. The two groups are believed to comprise Region 10's principal segment of arms manufacture, and may be considered to have benefitted greatly from post Viet Nam military expenditures.

The only regressive components of the regional economy, in comparing its 1983 income production with 1972, are mining--its relative income production in the Pacific Northwest sufficiently weak to neutralize the effect on the regional economy of marginal income production from Alaskan petroleum extraction--forest products, and financial services. As a practical matter, the relative deficiency of mining is insignificant, representing nothing more than Oregon and Washington--essentially non-mining states--failure to participate in the industries' extreme national growth.

Negative marginal income from forest products industries, on the other hand, is highly meaningful. It represents a real loss of income, of jobs, and of the economic well being of entire communities. Similarly, relative weakness of financial services is a significant matter, though of minor scale compared to forest products. That weakness is in considerable measure a compound of the consequences of effective failure of Washington's Seafirst, Inc., of Oregon's Equitable Savings and Loan (both rescued by acquisition) and several state chartered Oregon rural banks.

Some qualitative observations are in order.

Alaska's high prosperity must be recognized to be tenuous. The state's economy has become so dependant on petroleum production as to be highly vulnerable to price risk. Alaska has become, in substance, the nation's largest one industry community; and for that community to continue to flourish, petroleum production rates and prices must continue to be high and stable. There is no protection against ultimate depletion--though the state's "Perpetual Fund" represents an innovative effort to provide just that--so the key to Alaska's economic future lies in the success of oil exploration and development in deferring the winding down of its oil economy until the prices of other Alaskan mineral resources reach levels that permit their exploitation.

Forest production probably can not recover its central role in the regional economy. Both resource and technological constraints are in force to limit the dimensions of the industry, without regard to the play of the cyclical market influences that effect its intermittent expansions and contractions. On the resource side, the Forest Service's 1972 judgement that cutting and regrowth were in balance in the Pacfic Northwest means that, in the absence of expensive measures to stimulate growth, there is no marginal raw material to develop. Since the wood utilization rate is also at or near its limit (residues are fully employed either as raw materials or as fuel), there appears to be an absolute

ceiling on the amount of wood that the region can incorporate in products. On the technological side, continuing development of fabricated wood forms for use in structural applications and the softening of local building codes have virtually eliminated the qualitative advantage that Douglas fir held for so long over other North American wood species.

In the longer term, however, it is probable that the Pacific Northwest will recover its prime position in wood products. Expansion may not be possible, but a firm leadership position in an industry experiencing rising real prices is highly likely. Again, the explanation lies in the supply of wood as a raw material. Where forestry in the Pacific Northwest has been governed by the sustained yield concept, forest practices in competing North American areas, notably the Southeast and British Columbia, have aimed at maximizing revenues. Those forests are being--have, for a couple of decades, been--cut at a rate in excess of the reforestation rate. It will take time for the effects of forest depletion to have an effect on supply; but by the turn of the century Pacific Northwest forests should again begin to be solidly established as the prime source of North American wood products.

The evolution of energy production and energy intensive industries may be expected to compose the least favorable component of regional economic development. The damage done to the Northwest economy by the WPPSS debacle was profound, and will persist. The cost of abandoned and mothballed generating plants has been incorporated firmly into the rate base, as has the cost of effective incremental capacity for which there is presently no demand. As a consequence, Northwest power rates have risen at almost precisely twice the national rate since 1972. Northwest electricity remains the nation's least costly; but for industrial consumers the effective tradeoff to be considered is the gap between power costs and transportation costs. Since the 1940's that gap has favored the Northwest, but only for the most energy intensive of industries. The number of such industries has been shrunken perceptibly by WPPSS. And since the marginal cost of electricity in the Northwest in the future will be equal to--or greater than, if fuel transport charges are unfavorable--the national average, there is no reason to anticipate a reversal of the attrition of regional advantage imposed by WPPSS.

(It should be noted that effects of the region's comparatively rapid rise in electricity rates are largely undisclosed by the numbers in this analysis. Those numbers include, for example, the closure of the Bunker Hill complex in Northern Idaho; but the closure of a copper refiner and a copper smelter in Tacoma, a secondary lead smelter and a scrap steel plant in Seattle, and an aluminum reduction plant at the Dalles all occurred after 1983, so are not represented in this report. In none of the cases noted was electricity cost the prime reason for closure: but in every case it had contributory impact.)

Another source of potential economic--and social--difficulties for Region 10 may prove to maintaining the level of state and local government services. State and local governments compose a basic industry in each state of the region. Quality of public facilities and services--educational and justice systems, parks and highways, fire and police protection, public health and water and waste disposal facilities--has traditionally been given high priority in Region 10, particularly in

Oregon and Washington. Public services and amenities have been considered complements rather than competitors to economic development. But their financing has been simplified in the past by above average incomes. Continuing decline of average income combined with inflexible tax bases and constitutional balanced budget provisions has involved each Northwest state in a series of policy disputes in the eighties that are focussed on annual or biannual budget processes. In the absence of economic growth, it must be anticipated that such dispute will intensify, and the support to local economies provided by government may erode.

The most optimistic element among the region's economic prospects is progressive expansion of trans-Pacific trade. Its quantitative expression can be found in the positive advantage developed in Northwest wholesale trade and transportation over the last decade. For where much of the nation sees the Pacific trade in terms of a losing competition with Japanese manufacturers for the durable consumers' goods market, for the ports of Seattle and Tacoma and Portland it has meant increased landings, storage, wholesaling and financial revenues.

Those ports are large, efficient served by excellent rerouting facilities. Though the local markets they serve are much smaller than those of the Bay Area and Southern California, their access to major Middle West and Northeast markets is at least equal, as, for the long term, is their access to potential American exporters of food, timber and industrial goods.

Development of Pacific rim trade will unquestionably be slow. Japanese protectionism, the poverty of China and Southeast Asia, and the absence of a coherent American trades policy all inhibit its development. But--barring the occurrence of war or global depression--Pacific trade will continue to expand, and hopefully, to broaden. Oregon, Washington, and, as a supplier of raw materials, Alaska should all benefit.